

**TESTIMONY OF SARA AMUNDSON  
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BEFORE THE HOUSE SUBCOMMITTEE ON ENVIRONMENT AND  
HAZARDOUS MATERIALS  
MAY 23, 2006  
IN SUPPORT OF H.R. 2567**

Good afternoon. Thank you Mr. Chairman and members of the Subcommittee for the opportunity to testify today in support of the *Antifreeze Bittering Act*. I am Sara Amundson, Legislative Director for the Doris Day Animal League (DDAL). DDAL has 350,000 members and supporters nationwide who strongly support H.R. 2567. The organization was founded in 1987 to promote the protection of animals through legislative advocacy in the states and on the federal level. DDAL is grateful to Representatives Ackerman, Rohrabacher, and Wilson for their leadership on H.R. 2567, a bill with the ultimate goal of better protecting animals and children from a common household hazard.

This bill enjoys broad support from an unlikely coalition of animal advocacy organizations, public health organizations, and the antifreeze industry. In addition to DDAL, these supporters include the American Humane Association, The Humane Society of the United States, the Society for Animal Protective Legislation, Honeywell and all U.S. antifreeze manufacturers, the Consumer Specialty Products Association, the American Academy of Pediatrics, the American Veterinary Medical Association, and the Pet Food Institute.

### **Animals and Children are Exposed to Antifreeze**

For the past fifteen years, the DDAL has been tracking ingestions of antifreeze by pets and wildlife. Poisoning occurs with this product because it is often inadvertently spilled in our driveways or left in open containers in our garages by automotive “do-it-yourselfers.” In addition, a neighbor wishing to rid himself of a barking dog or wandering cat may deliberately bait a pet, instigating a cruel solution to a neighborhood squabble.

Because it is colorful and has a sweet taste, animals and children are drawn to it. Animals may quickly ingest a lethal amount. One teaspoonful of ethylene glycol antifreeze can kill a cat. As little as one to two tablespoonfuls can kill a 100-pound dog. One survey found that two out of three veterinarians see at least one accidental ethylene glycol poisoning each year. The Washington State School of Veterinary Medicine places the annual number of dog and cat antifreeze poisonings at approximately 10,000; however, a 1996 “study of small practice veterinarians throughout the United States found that more than 90,000 dogs and cats die each year from ingesting ethylene glycol antifreeze.”<sup>1</sup> Unfortunately, the symptoms of poisoning can be misleading, causing the pet lover to think the animal is merely sleepy until renal failure causes death.

Moreover, according to statistics compiled by the American Association of Poison Control Centers, more than 1,300 children ingest antifreeze each year. The U.S. National Library of Medicine Toxicology Data Network states that the minimum lethal dose for a 150-pound male is 4 ounces, which means it takes far less to kill a child. While records indicate that accidental ingestion by children is caught early enough to

prevent death, not all human victims recover because not all ingestions are accidental.

Ethylene glycol antifreeze is also used in murders and suicides.

### **Denatonium benzoate**

The good news is that, unlike many of the issues we grapple with, this one has a ready solution. DDAL certainly considers safety caps, seals, and public education necessary. However, three states and several other countries have chosen to employ an additional tool, which is requiring the addition of denatonium benzoate (DB) to antifreeze that is sold directly to the consumer.

Denatonium benzoate is one of the bitterest substances known and available to us. In 1963, the Food and Drug Administration (FDA) approved the addition of DB to cosmetic and toiletry products, including nail polish, hair spray, and cleaners, as a safety mechanism to deter children from ingesting them. The U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (27 CFR 21.76) currently requires that all industrial alcohol-based products contain a bittering agent and specifically requires the use of DB in certain products as a denaturant, making the product unpalatable. The addition of the bitterant has not compromised the usefulness of the products.

Requiring the addition of DB to ethylene glycol antifreeze destined for the consumer retail market has the potential to save thousands of animal lives and prevent hundreds of children from being sent to emergency rooms each year. DDAL strongly urges your support of this small, common-sense measure, literally costing pennies per gallon, to achieve significant, beneficial results.

### **California State Law**

The Doris Day Animal League has a long history of lobbying in support of state legislation to require the addition of denatonium benzoate to make antifreeze unpalatable to both animals and children. In 1993, in response to concerns from veterinary emergency rooms, DDAL members who had lost a beloved pet, the death of a California condor, and the startling statistics on children gathered annually by the American Association of Poison Control Centers, we successfully lobbied the California legislature to require the addition of denatonium benzoate to antifreeze and coolant products. In spite of significant opposition mounted by the manufacturers of antifreeze, the bills passed with overwhelming votes in both the California Assembly and Senate. Unfortunately, the governor vetoed the bill.

Then in 2000, after losing her family's beloved dog Angus to antifreeze poisoning, Californian Lauren Ward began researching the solution to her family's tragedy. She contacted her state legislators to demand to know why the simple addition of DB to antifreeze to help prevent these unnecessary deaths wasn't required by the state. Fortunately, her assemblyman agreed to introduce a bill to require the bitterant be added.

Our research in support of the California bill demonstrated that in the ten years that had passed, despite the voluntary efforts by the antifreeze industry to educate the public, large numbers of animals were still being poisoned from ingesting antifreeze. In 2001, 13 California veterinary clinics reported 136 cases of antifreeze poisoning with 107 deaths. Antifreeze poisoning continued to send many children to the hospital. Working with Lauren Ward and members of the California State Senate and Assembly, we lobbied again for passage of an antifreeze bittering bill. The California Medical Association,

American Academy of Pediatrics, California Veterinary Medical Association and the California Integrated Waste Management Board all supported the legislation. Over the objections of the antifreeze industry, the bill passed and was signed into law in 2002.

Subsequently, we have worked with legislators in several other states in support of bills to require the addition of denatonium benzoate to antifreeze. Last year, New Mexico became the third state to pass such a bill into law. And that language is identical to the federal bill before you today.

DDAL strongly supports the pursuit of progressive state policies. However, because of the nature of commerce in this country and because these poisonings occur regardless of state lines, it is imperative to pass a federal bill to ensure that the goal of reducing antifreeze poisonings is realized. It is important to extend to each child and every animal the extra layer of protection that these states have so wisely adopted. This can be accomplished in a timely and sensible manner only through federal action. A product marketed and distributed on a national basis should have a national standard to meet.

Moreover, the absence of a federal law undermines the effectiveness of existing state laws: The ease of interstate transportation necessitates a uniform policy to prevent antifreeze spills in California from cars driving into the state from Nevada. It is impossible to judge the effectiveness of these new state laws based on the interstate nature of the problem. In fact, the U.S. Conference of Mayors, at its 2004 annual meeting, passed a resolution urging Congress to “help cities protect children and animals by enacting legislation to require denatonium benzoate as an additive to antifreeze that contains ethylene glycol....”

### **Concerns and Questions**

We would like to address and, we hope, allay, some of the concerns about this legislation that have been raised.

First and foremost, comparisons have been made between this legislation and the methyl tertiary butyl ether (MTBE) issue, but there are significant and meaningful differences between the two.

➤ Contrary to characterizations that have been made, there is no blanket liability waiver in the bill before you today. While the MTBE liability language would also have extended to MTBE manufacturers, H.R. 2567 does exactly the opposite: It holds the manufacturers of antifreeze and of DB liable for their respective products, without limit. All three state laws (California, New Mexico and Oregon) include some form of liability protection for antifreeze manufacturers. H.R. 2567 goes a step further than California's and Oregon's laws by establishing "assigned liability" under which antifreeze manufacturers and denatonium benzoate manufacturers are liable for any problems that arise from the use of their respective product. DDAL would not support legislation that exempts manufacturers from liability for their products.

➤ In 1999, MTBE use amounted to 8.4 million gallons PER DAY (3 billion+ gallons per year), whereas approximately 7,000 gallons annually of DB will be needed to bitter the antifreeze covered by the legislation (i.e., 157 million gallons). According to a report commissioned by the Maine legislature: "One gallon of reformulated gasoline, if spilled, would release a mass of 308g of MTBE to the environment. It would take 2704 gallons of treated antifreeze to release an equivalent mass of denatonium benzoate." <sup>2</sup>

➤ MTBE was able to cause such damage to drinking water supplies in large part

because gasoline is stored in underground tanks. About 9 million gallons of gasoline are released to the environment each year due to spills and leaks. At no time is either DB or antifreeze stored underground.

That same report by the Maine Department of Environmental Protection cited a conversation with Ken Kaufmann, Oregon's state toxicologist, in which he stated that "no incidents of drinking water well contamination or groundwater contamination or bad tasting water due to denatonium benzoate have become known."<sup>3</sup>

➤ EPA data indicate that MTBE is a potential human carcinogen at high doses. At low doses, such as the low levels needed for aversion, DB exhibits low mammalian, avian, and aquatic toxicity. There is a record of only one negative reaction to DB, which occurred in 1978 in a hypersensitive man.

### **Efficacy Issues**

Questions have been raised about whether the addition of DB to antifreeze will indeed prevent poisonings. Most of those expressing doubts about DB's efficacy point to a June 2004 retrospective review by Mullins and Horowitz of Oregon Poison Control Center (OPCC) records of pediatric exposures to antifreeze and windshield washer fluid for the period 1987-2003, as well as coroner reports of poisoning deaths between 1994-1997.<sup>4</sup> OPCC reported "no change in frequency" of pediatric poisoning frequency after 1995. The authors also found that "no child died or suffered 'major' effects before or after 1995." They concluded, "The mandatory addition of denatonium benzoate to automotive products has produced no measurable reduction in unintentional pediatric toxic alcohol exposures in Oregon."

Not only are there deficiencies in this report, but it must also be placed in the context of other reports that point to the efficacy of DB.

- The overwhelming problem with antifreeze poisonings, in terms of number and mortality, occurs among animals, chiefly household pets. The Mullins/Horowitz review does not even consider this aspect of the issue. Unfortunately, it would be difficult to perform a similar evaluation of animal poisonings as there are no reporting requirements, in Oregon or elsewhere.
- This evaluation actually argues in support of a uniform national standard inasmuch as it does not account for the effect of the use or misuse of antifreeze purchased outside Oregon.
- The Mullins/Horowitz retrospective survey does not take into account variable levels of DB in antifreeze and windshield washer fluid. A state study <sup>5</sup> done in 1996 found considerable variability in the amount of DB present in various consumer products. The availability of consumer products that are not in compliance with the law suggests not merely that the impact of the law (i.e., decrease in child and animal poisonings) may not be measurable for some time, but also that the purpose of the law is actually undermined. This situation argues in favor of a uniform federal standard for bittering antifreeze.
- This is not the only indication that the Mullins/Horowitz survey may have been premature. A 2001 analysis of data by the staff of the California Integrated Waste Management Board (CIWMB) suggests that it would be ill-advised to make judgments about the efficacy of denatonium benzoate on the basis of experience over a relatively short time period by noting that “[c]omparatively, it took 17 years to conclusively prove that child-resistant caps were effective in reducing child exposures in general.”



It is true that data on the efficacy of DB are not abundant, and that data exist on both sides of the question. That being said, however, there is evidence of its usefulness in preventing or mitigating ingestion of substances by children and animals.

For example, in its memo supporting *West Harlem Environmental Action v. U.S. EPA*, the Natural Resources Defense Council<sup>6</sup> wrote: "...EPA claims that it revoked the bittering agent requirement because of efficacy concerns, but EPA's own analysis disproves these concerns. Before requiring the safety measures, EPA reviewed scientific studies on denatonium benzoate, a possible additive and 'the bitterest substance known to man.' EPA 0113I. A field study of a rodenticide containing 10 parts per million of this bittering agent resulted in a '95% reduction in rodent activity.' *Id.* The same level of bittering agent in different household products 'was found to reduce the amount ingested by children.' *Id.* This record evidence supports the conclusion that a bittering agent can effectively control rats and deter children's exposure."

In 1963, the FDA approved the addition of denatonium benzoate to cosmetic and toiletry products as a safety mechanism to deter children from ingesting these products. It is used in hundreds of products to render them unpalatable, including cleaning agents, other household products, cosmetics, and personal care products—everything from detergents and aftershave to fire extinguisher fluid, gasoline, pesticides and herbicides, ink, wax crayons, nail polish remover, bubble bath, hair spray, and eyeshadow. It is even in veterinary sprays and ointments. In 1989, the U.S. Department of Agriculture approved it for food plant use.

Also, according to the Center for the Science and Engineering of Materials<sup>7</sup>, DB “is recognized as the bitterest substance known. When it is added in only minute quantities to potentially harmful household, garden or automotive products, this harmless additive renders these products unpalatable and becomes a powerful deterrent against poisoning especially in young children.”

Likewise, the CIWMB staff study also found “that the addition of denatonium benzoate may not prevent exposures, but it would significantly reduce the amount ingested, hence the severity of exposures. Numerous studies have shown that it does repel animals, though until it is used extensively in antifreeze, the magnitude of its effectiveness for animals in ethylene glycol based antifreeze will be difficult to verify.”

One such study is “Denatonium benzoate as a deterrent to ingestion of toxic substances: toxicity and efficacy”<sup>8</sup>, in which the authors conclude the following:

“Since there is evidence that some taste aversion agents reduce the quantities of liquid substances ingested by dogs, and there is evidence that denatonium benzoate reduces ingestion quantities by children, denatonium benzoate may reduce the seriousness of accidental exposures to harmful fatal substances in dogs. This deterrent potential in animals needs to be investigated further. Denatonium benzoate should be added to toxic substances available in and around homes which, when ingested, represent serious hazards to animals and children.”

Given that there is evidence of an aversive reaction to DB by animals; that there is no evidence indicating animals or children might be harmed by this safety measure; and that animals are likely to benefit from this step and children almost certainly will benefit—coupled with the long history of DB's use (and recognized value) as a bittering agent—a

strong case can be made in favor of a policy decision to require the addition of a bittering agent to this indisputably toxic substance even in the face of some scientific uncertainty.

We feel that this is a wise step to take since the possibility exists for preventing some poisonings or at least mitigating the severity of those that do occur.

### **Environmental Issues**

As an animal protection organization, we would not advocate the use of chemicals that would harm the environment, animals, or human health, so we do not take lightly the environmental concerns that have been raised about DB. We have based our support for adding denatonium benzoate to ethylene glycol antifreeze not only on the prospect of preventing poisonings, but also on an extensive record of safe use both here and abroad.

➤ DB is a chemical that has been used safely and effectively as an aversive agent in this country for over 40 years; as noted earlier, in 1963 the FDA approved its use in cosmetics and toiletries to deter children from ingesting them. It is used in dozens of other household and personal care items, cleaning agents, and many other products, such as deer repellent, that make their way into the municipal waste stream or are deposited directly on or applied to the environment. Bitrex, one of the commercial brands of DB, “has been officially recognized as the denaturant of choice in more than 40 countries.”

While some data gaps exist for hazard identification, state and federal regulators ultimately assess for *risk*. With that in mind, it should be noted that:

➤ The CIWMB staff analysis found that DB “readily biodegrades, its transport is attenuated by soil, and it is easily treated in sewage treatment systems and drinking water systems. Staff has determined that the addition of [DB] to antifreeze would not lead to any adverse health or environmental effects.”

- DB exhibits low mammalian, avian, and aquatic toxicity, especially at the levels used for aversion.
- Ethylene glycol antifreeze is already rigorously managed as a hazardous substance; waste antifreeze may contain lead, cadmium, and other heavy metals. According to EPA, dumping antifreeze can cause serious water quality problems. Therefore, the industry urges consumers and large-scale users to dispose of used antifreeze properly. That will not change when DB is added in the minute quantities needed as a bittering agent. The Consumer Product Safety Commission's testimony at the Senate hearing confirmed that DB will contribute little or no incremental hazard or risk to human health when added to ethylene glycol antifreeze.

### **Conclusion**

Antifreeze poisoning causes animals great suffering and often death. In addition to the accidents that happen, DDAL knows of numerous cases where individuals have deliberately given antifreeze to animals because they wanted to kill them. Our very informal tally of cases of both deliberate and accidental poisonings includes eight alleged antifreeze deaths in Iowa, and others in Florida, Maine, Michigan, Missouri, Montana, Mississippi, Pennsylvania, Tennessee, Texas, and elsewhere. We worked with a family in Georgia who sought justice for their two dogs killed by a belligerent neighbor. State Representative Kathy McCoy, who successfully carried the bill in New Mexico, lost her own companion animal in the same way. Suicides and murders involving antifreeze have occurred in Florida, Georgia, Kansas, Maryland, Massachusetts, Missouri, New Jersey, and Pennsylvania.

Where the perpetrator in a deliberate poisoning case is known, it often is a neighbor; occasionally, it is an adolescent just starting down the path of antisocial behavior. They use antifreeze because it is easy to get, easy to give, and almost guaranteed to kill.

Because of its widespread acceptance, and because consumer demand for less toxic alternatives has been slow to develop, we fully expect ethylene glycol-based antifreeze to continue to dominate the market for the foreseeable future. Therefore, accidents will continue to happen despite the best prevention and precautions, and sadly there are always those who seek an easy way to harm animals. These are needless tragedies that touch many lives. This legislation will do much to prevent both kinds of tragedies from happening.

Please support moving H.R. 2567, the *Antifreeze Bittering Act*, to the floor for consideration by the full House of Representatives.

## ENDNOTES

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<sup>1</sup> Petition published in Fed. Reg. v.63, #27, Feb. 10, 1998, p.6693.

<sup>2</sup> Denatonium Benzoate Report, ME Dept. of Environmental Protection, February 13, 2006, p. 11.

<sup>3</sup> Ibid., p. 8.

<sup>4</sup> Mullins and Horowitz, Vet Hum Toxicol, 2004 Jun;46(3): 150-2.

<sup>5</sup> The Oregon Health Division is responsible for monitoring compliance with the required addition of a bittering agent to consumer products under the Household Toxic Products Rules, but there is no protocol for periodic testing. Henderson et al. [Chemosphere. 1998 Jan;36(1):203-10) developed a sufficiently sensitive High Pressure Liquid Chromatography method for analyzing DB in consumer products. They analyzed antifreeze and windshield washer fluid products purchased in Oregon 1994 and 1996. The concentration of DB in the products purchased in 1994 ranged from non-detectable (less than 1.25 ppm) to 30.9 ppm, with 7 out of the 10 products having undetectable levels. In 1996, the concentration of DB in antifreeze ranged from 26.4 to 32.6, with no non-detects. The concentration of DB in windshield washer fluid ranged from non-detect to 30.1 ppm, with 8 of the 14 washer fluids having undetectable levels. Although this is a very small study, this indicates that in 1996, there was still considerable variability in the amount of DB present in various consumer products.

<sup>6</sup> *West Harlem Environmental Action v. US EPA*, Memorandum in Support of Plaintiffs' Motion for Summary Judgment, filed by the Natural Resources Defense Council in US District Court for the Southern District of NY, March 29, 2005; pp15-16

<sup>7</sup> "The National Science Foundation sponsors a network of Materials Research Science and Engineering Centers (MRSECs) at U.S. universities. The Center for the Science & Engineering of Materials (CSEM) at Caltech is one of them. The goal of the program is to stimulate interdisciplinary research and education in materials." (CSEM Fact Sheet)

<sup>8</sup> Hansen SR, Janssen C, Beasley VR. *Vet. Hum. Toxicol.* 1993 Jun; 35(3):234-6.